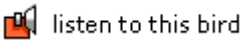
CANEBREAK RESTORATION ON BIG CEDAR CREEK, JASPER, JONES and PUTNAM COUNTIES, GEORGIA

Swainson's Warbler

Limnothlypis swainsonii



Description 5.25". A plain warbler, olive-brown above and whitish beneath, with tawny brown cap and whitish eye stripe and brown eye line. (Similar to the worm eating warbler)

Voice 3 or 4 clear notes followed by several rapid descending notes, described as whee-whee-whee, whip-poor-will; similar to song of Louisiana Waterthrush, but lacks the sputtering downward trill at the end. Call is a loud 'Chip'.

Habitat Reclusive, hides in dense thickets, except when the male perches to sing. In the Piedmont area of Georgia, it is found along river bottoms in cane breaks and to a lesser extent Chinese privet. Eats caterpillars, spiders and other insects. Forages both in the foliage of undergrowth and on the ground.

Nesting 2-5 white eggs in a cup shaped but loose, bulky nest of vegetable fibers, rootlets, and dead leaves, placed in a dense bush or vine. 13-15 days for incubation of eggs. Only the Bachman's warbler has white eggs, too.

Range Limited to much of the southeastern United States. Neotropical migrant.

Discussion This dull-colored warbler is shy and retiring, dwelling in remote, often impenetrable swamps and cane thickets. If not for its song-like that of a Louisiana Waterthrush-it would frequently be overlooked. It is named after William Swainson, an early-19th-century British naturalist

The Swainson's warbler (Limnothlypis swainsonii) is a rare inhabitant of bottomland hardwoods of the Georgia Piedmont. It is uncommon because it requires a thick understory in which to nest and forage usually in wide bottomland hardwoods (generally at least 100m) with high regional forest cover (Meanley 1966, Thomas et al. 1996). Except in the southern blue ridge, thick stands of cane (*Arundinaria* spp.) usually provide habitat for this species. Cane is less common today than indicated by historic accounts (Bartram 1928, Muir 1916). Canebrakes were used by settlers as forage for cattle and were likely overgrazed. Canebrakes and overgrazed former canebrakes were easily plowed and planted to other crops. Canebrakes were probably one of the first habitat types in Georgia to fall to the plow since associated soils were fertile, near water, and required comparatively little labor to clear after grazing (Hughes 1951). Finally, some research suggests cane may require occasional fire (approximately once every decade) to survive.

Extensive clearing of land for agriculture and timber early in the 1900s has resulted in an unnaturally homogenous and vigorous forest throughout the Piedmont. Tree mortality and associated canopy gaps have probably occurred at lower levels than historic forests, which existed in a dynamic equilibrium with regular natural disturbances (steady state). Beaver (*Castor canadensis*) populations have been suppressed in Georgia for many decades. This has resulted in forests with low structural diversity, fewer canopy gaps, and very little cane. To this end Swainson's warbler serves as an umbrella species for a guild of wildlife requiring canopy diversity and a well developed understory, which may benefit species requiring soft mast, woody browse, thick escape or loafing cover, snags and down logs. Some of the many bird species which may benefit from management for Swainson's warblers include: hooded warbler (*Wilsonia citrina*), Kentucky warbler (*Oporornis formosus*), wood thrush (*Hylocichla mustelina*), American redstart (*Setophaga ruticilla*), yellow-billed cuckoo (*Coccyzus americanus*), ruby-throated hummingbird (*Archilochus colubris*), American woodcock (*Scolopax minor*), indigo bunting (*Passerina cyanea*), eastern towhee (*Pipilo erythrophthalmus*), northern cardinal (*Cardinalis cardinalis*), and wild turkey (*Meleagris gallopavo*). Through the Georgia Piedmont Natural Resources Cooperative we hope to restore this once common habitat type to a number of sites throughout the Georgia Piedmont. In addition to this direct habitat management, we hope to benefit wildlife through the development of techniques to successfully restore canebrakes, to document changes in habitat and bird use resulting from canebrake restoration, and to ensure that habitat manipulations initiated through the Georgia Piedmont Natural Resources Cooperative are effective.

The area of Big Cedar Creek, from the confluence of Cedar Creek, Shoal Creek, and Glady Creek to Hwy 129 contains the best example of canebrake habitat on the Oconee National Forest, as indicated by systematic surveys of all major watersheds conducted in 2001. Nearly 30 acres of true canebrake habitat cane be found in this area. In addition another 60 or more acres contain widespread thin stands of cane that are suitable candidates for canebrake restoration. The USDA-Forest Service, Oconee National Forest, publicly owns most of the approximately 8 creek miles in this section. However private landowners (Weyerhaeuser, Plum Creek Timber Company, and Joyce Hatcher) also own a substantial portion. Through the coordination of the Georgia Piedmont Natural Resources Cooperative all landowners along this creek have met and agreed to manage to restore canebrake habitat along Big Cedar Creek.

Methods

Eligible sites for restoration meet at least 5 of the following 7 criteria:

- Floodplain site
- Little woody understory/uniform overstory
- Presence of cane
- Lack of significant privet
- Presence of Swainson's warblers or large cane patches in adjacent stands
- Cane in decline
- Larger tract of bottomland hardwood (at least 100 feet wide with high regional forest cover)

Site Prescription

The goal of the prescription is to diversify the mid and understory and, where possible, rejuvenate and expand existing cane at suitable sites in order to provide high-quality nesting and foraging habitat for bottomland hardwood songbirds which require a diverse understory. Trees should be thinned either through harvest, felling, or herbicide to create a canopy which is initially 60-70% closed on average, with an eventual target of approximately 80% canopy cover. Treatments will be done on 10 to 20 acre plots. Larger trees (>14" DBH) should be left when possible. Tree species of higher timber or wildlife value to cooperators (i.e.cherrybark oak,*Quercus falcata*) may be retained.

Duration

Response of vegetation and songbirds to treatment will be in the long term. Studies of cane (Hughes 1957) found cane capable of rapid growth upon release. In stands with widespread but decadent cane, release may result in the development of a substantial canebrake in just a few years. Even after cane completely reaches its potential within a stand the dynamics of midstory development and eventual canopy closure will be ongoing for decades. However, the purpose of this manipulation is to benefit understory-nesting songbirds. To this end we anticipate some songbird response to occur within one year of canopy manipulation and for significant changes in the songbird community to be recognizable within five to ten years. This has generally been our finding in experimental cane restoration plots across the Piedmont. Periodic checks of vegetation and songbird response may be productive beyond this period but are beyond the scope of this proposal.

Incidental Environmental Impacts

This study is intended to benefit a wide range of avian species. While some species as mentioned above will benefit, others may not or even experience a decline in habitat quality. Songbirds which favor stands with an open midstory (i.e. Acadian flycatcher, *Empidonax virescens*) may lose habitat from these manipulations since they will likely result in a more closed midstory, however forests of this character are very common in the landscape. There is also the possibility of higher rates of nest parasitism on songbirds from Brown-Headed cowbirds (*Molothrus ater*), in these gaps, however cowbird problems seem to be tied more closely to landscape characteristics, especially regional forest cover. Regional forest cover is very high in the Georgia Piedmont, due primarily to the Oconee National Forest and Piedmont National Wildlife Refuge. Finally there is a possibility of higher rates of nest predation from avian predators, especially woodpeckers (Picidae spp) that may benefit from the large number of snags (if chemically thinned) and canopy gaps at the site. If breeding bird point counts suggest this may be the case, removal of the snags from the site should lessen the threat of predation.

In the process of selecting tree species to cull, we will also select tree species to leave and often to release. Most often these species are of higher timber or wildlife value, such as oaks(*Quercus spp*); black walnut,(*Juglans nigra*); or mulberry (*Morus spp*) while culling sweetgum (*Liquidambar styraciflua*) or boxelder (*Acer negundo*), which are often 75% or more of the stocking. For some species

that have been historically high-graded in Georgia's bottomlands this effort might be considered a step toward bottomland hardwood restoration, especially where cooperators are planting such species in the gaps created. Where stand composition is improved it may benefit some wildlife species by restoring species composition to something more similar to its historic state. Many game species such as squirrels (*sciurus spp*), turkey, and white-tailed deer (*Odocoileus virginianus*) may benefit in the process from hard and soft mast as well as increases in available browse in the case of deer. In the absence of planting many of these sites will regenerate as sweetgum or some other resident species that currently dominates the site.

Since trees are contributing to the stability of the creek banks at many sites care should be taken not to cull any trees with 15 feet of the bank. Herbicide use should be planned for the winter when these chemicals are less volatile. Injections will be high enough on the stem that most should not be flooded unless winter floods are unusually high. At this time the Georgia Piedmont is in its third year of a drought. Rainfall levels are expected to be below normal.

No impacts on federal or state endangered species are anticipated. All manipulations will be in bottomland and pines will not be culled (cut down or killed), so there should be no impact on local red-cockaded woodpecker (*Picoides borealis*) populations.

Literature cited

Alsop III, F.J. 2001. Birds of North America, Eastern Region. Smithsonian Handbooks.

Bartram, W. 1928. The travels of William Bartram, New York,

Hughes, R. H. 1951. Observations of cane (*Arundinaria)* flowers, seed and seedlings in the North Carolina Coastal Plain. Torrey Bot. Club Bul. 78(2):113-121.

Hughes, R. H. 1957. Response of cane to burning in the North Carolina coastal plain. USDA Gen. Tech Bull. 402, NC Ag. Exp. Sta., Raleigh NC. 24pp.

Meanley, B. 1966. Some observations on habitats of Swainson's warbler. Living Bird 5:151-165.

Muir, J. 1916. A thousand mile walk to the Gulf. Houghton Mifflin Co., New York, New York. 224pp.

Thomas, B., E. Wiggers, and R. Clawson. 1996. Habitat selection and breeding status of Swainson's warblers in southern Missouri. J. Wildl. Manage. 60:611-616.